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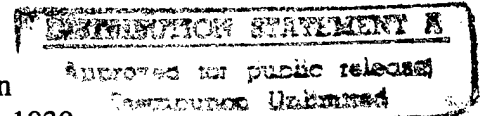Report No. SID/MR-94/0051

(Unclassified)

Task Assignment Plan

for

Enhancements to FAMMAS and WINLAM Models

Prepared for

HQ USAF/LGSI
1030 Air Force Pentagon
Washington, DC 20330-1030
Attn: Maj Randy Moller

20 October 1994

Prepared by

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13. ABSTRACT (Maximum 200 words)

This Task Assigment Plan explains how Synergy, Inc. will fulfill the HQ USAF/LG requirement to continue the modification of the Funding Availability Multi-Method Allocator for Spares(FAMMAS) model, providing an alternative methodology for predicting aircraft readiness rates in support of the Air Force's WSPAR, SEMR, and POM programs. Additionally, Synergy will analyze the link between aircraft availabilty and dollars budgeted for support equipment, depot maintenance and aircraft modifications, and develop an proof-of-concept model for the depot maintenance link.

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Funding Availability Multi-Method Allocator for Spares(FAMMAS), Windows Integrated Logistics Assessment Model(WINLAM)

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TASK ASSIGNMENT PLAN
on
ENHANCEMENTS TO FAMMAS AND WINLAM MODELS

Prepared for

HQ USAF/LGSI
1030 Air Force Pentagon
Washington, DC 20330-1030
Attn: Maj Randy Moller

20 October 1994

Prepared by

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09 November 1994

Maj Randy Moller
HQ USAF/LGSI
1030 Air Force Pentagon
Washington, DC 20330-1030

Dear Maj Moller:

Contract F33657-92-D-2055
SIDAC Task No. 97
Delivery Order No. 0065
CDRL A009, Data Item MGMT-80057

Enclosed is the Task Assignment Plan for *Enhancements to FAMMAS and WINLAM Models*, as required under the above-referenced contract.

If you have questions, please contact me at 202-232-6261.

Sincerely,

James A. Lutz
Task Leader

c: DCMAO (Mr. Leon Sulton) Letter Only
       SIDAC (Mr. Heston Hicks)

TASK ASSIGNMENT PLAN
on
ENHANCEMENTS TO FAMMAS AND WINLAM MODELS

Introduction

Synergy will fulfill the HQ USAF/LG requirement for Logistics studies and analysis support to operate and maintain a suite of Logistics capability assessment models. These models are used to assess the peacetime readiness and wartime sustainability expected as a result of past, current, and projected investments in spare parts (buy and repair), depot overhauls, modifications, support equipment (peculiar and common), and consumables.

Goals and Objectives

Synergy shall continue the modification of the FAMMAS model, providing an alternative methodology for predicting aircraft readiness rates in support of the Air Force's WSPAR, SEMR, and POM programs as well as other logistics assessments. Additionally, Synergy will analyze the links between aircraft availability and dollars budgeted for support equipment, depot maintenance and aircraft modifications, and develop a proof-of-concept model for the depot maintenance link. Synergy will also develop and implement the capability for balancing resources within and among aircraft weapon systems.

Technical Approach

Synergy will first compare three proposed methodologies for FAMMAS: the parametric equations currently used, the Navy regression-based algorithm tested on a single Air Force MD, and the statistical network analysis approach employed by the Abductive Information Modeler (AIM). Once the outputs of the three methodologies have been compared and evaluated, the results will be briefed to the Air Force for the selection of the methodology to be implemented. The appropriate algorithms will then be coded into the existing model and undergo further testing, verification, and validation.

Synergy will also perform research on the links between aircraft availability and dollars allocated/budgeted for support equipment (peculiar and common), depot maintenance, and modifications (reliability and maintainability improvements). Synergy will then develop a proof-of-concept model for depot maintenance to demonstrate how this resource affects aircraft availability and sortie generation. A preliminary design will be developed for integrating the model into FAMMAS and WINLAM. Further, the feasibility of similar models for support equipment and modifications will be investigated. The F-16 and F-15 aircraft will serve as the test case weapon systems in accomplishing this task.

Synergy will develop, install, verify, and validate a balanced resource assessment model to optimize the allocation of resources within each weapon system and across weapon systems. This model will be integrated with FAMMAS and, if deemed appropriate, WINLAM.

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Synergy will develop an on-line help system to facilitate use and understanding of the process. This help system will provide some analytical assistance as well as the standard help screens to aid in the understanding of the model's operation. The balanced resource model will be extensively tested, verified, and validated in the final stage of development.

Project Schedule and Milestones

The Work Breakdown Structure (WBS) in Figure 1 represents Synergy's proposed time line for accomplishing the tasks associated with the Statement of Work. Synergy will apply the most experienced personnel on this project and will produce the best products possible within the time and funds allocated by the government. The Synergy program manager will prioritize the efforts for the tasks to make the most efficient and effective use of available resources.
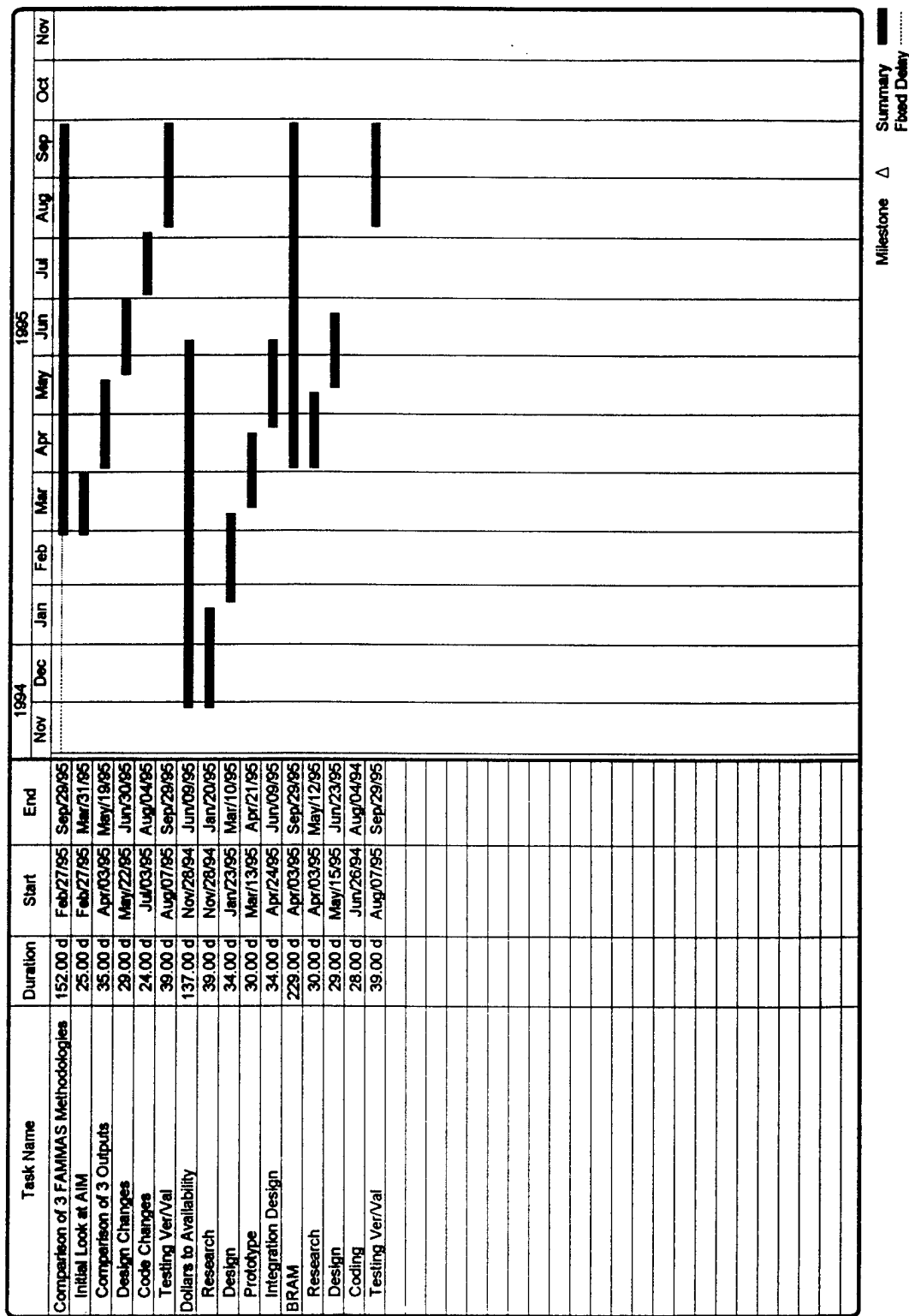
Deliverables

The following deliverables will be submitted for the efforts performed under this task:

(1) Final technical report on the task (CDRL A001) to describe the efforts and results that went into the accomplishment of the task.

(2) Monthly progress and status reports submitted every thirty (30) days throughout the duration of the contract (CDRL A004). These reports will keep the SIDAC contracting officer's technical representative (COTR) informed of the progress of the task on a monthly basis.

(3) Software Users Manual (CDRL A006) to aid in the instruction and use of the software.

(4) The software (CDRL A007) necessary to complete the task.

(5) Task Assignment Plan (CDRL A009). The plan presented in this document, which covers the objectives, technical approach, and schedule for performance of the Statement of Work.

Project Staffing and Experience

This project will be staffed with extremely qualified personnel. The education, capabilities, and experience of key personnel are summarized here.

Mr. James A. Lutz, Program Manager, Ph.D. program in Mathematics/graduate studies in operations research and statistics. He has more than 20 years of experience in logistics management, capability assessment, program and budget analysis, and operations analysis. As a member of Synergy's Operations Management Committee, he directs the performance of

Task Name	Duration	Start	End
Comparison of 3 FAMMAS Methodologies	152.00 d	Feb/27/95	Sep/29/95
Initial Look at AIM	25.00 d	Feb/27/95	Mar/31/95
Comparison of 3 Outputs	35.00 d	Apr/03/95	May/19/95
Design Changes	29.00 d	May/22/95	Jun/30/95
Code Changes	24.00 d	Jul/03/95	Aug/04/95
Testing Ver/Val	39.00 d	Aug/07/95	Sep/29/95
Dollars to Availability	137.00 d	Nov/28/94	Jun/09/95
Research	39.00 d	Nov/28/94	Jan/20/95
Design	34.00 d	Jan/23/95	Mar/10/95
Prototype	30.00 d	Mar/13/95	Apr/21/95
Integration Design	34.00 d	Apr/24/95	Jun/09/95
BRAM	229.00 d	Apr/03/95	Sep/29/95
Research	30.00 d	Apr/03/95	May/12/95
Design	29.00 d	May/15/95	Jun/23/95
Coding	28.00 d	Jun/26/94	Aug/04/94
Testing Ver/Val	39.00 d	Aug/07/95	Sep/29/95

Milestone △   Summary ■   Fixed Delay ······

Figure 1. Work Breakdown Structure

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work on all Synergy contracts. He specializes in the development and application of quantitative models for analysis of policies in logistics management, budgeting, capability assessment, and R&M.

Mr. Raymond L. Reed, Senior Logistics Management Specialist, M.S. Organic Chemistry. Mr. Reed has more than 20 years of experience in Air Force logistics. His areas of expertise include logistics management, tactical systems analysis, and acquisition management. He serves as the project manager for development and implementation of new parametric/interactive models, designed to perform logistics resource assessments of the U.S. Air Force's air mobility and air combat weapon systems. He will serve as the project manager for the tasking described in this document.

Mr. William E. Faragher, Senior Scientist, M.A. Mathematics. Mr. Faragher has more than 35 years of experience in operations research and logistics analysis. He is responsible for the software development for a suite of logistics assessment models designed to estimate the impact of budget decisions on aircraft readiness and sustainability. He directed the development of a database management system that imports data from a variety of automated sources and generates a set of output files for use in Synergy-developed logistics assessment models.

Mr. Glenn L. Archer, Junior Logistics Management Specialist, B.A. Economics. Mr. Archer is the supervisor for all O&M assessments for the Air Force and Army. He is responsible for completing the development of the Engine Logistics Assessment Model, which provides the Air Force with projections concerning the health of their engines inventory. He is responsible for designing, testing, and delivering this model to HQ USAF/LGSI and SA-ALC/LPF.

Point of Contact

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